

IN RE: APPLICATION OF SMALLEY ET AL.
PRELIMINARY AMENDMENT ACCOMPANYING REQUEST FOR FILING DIVISIONAL APPLICATION UNDER
37 C.F.R. § 1.53(b)

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- (a) providing a plurality of arrays, wherein each of the arrays of the plurality comprise single-wall carbon nanotubes; and
 - (b) assembling the plurality of arrays to form a large array.

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164. (New) An array comprising a plurality of single-wall carbon nanotubes aggregated in substantially parallel orientation, wherein the plurality comprises at least 10^3 of the single-wall carbon nanotubes.

165. (New) The array of claim 164 wherein the plurality comprises at least 10^{10} of the single-wall carbon nanotubes.

166. (New) A membrane comprising an array of single-wall carbon nanotubes in a substantially parallel relationship, wherein the membrane is nanoporous.

167. (New) The membrane of claim 166 wherein the membrane is conductive.

168. (New) The membrane of claim 166 further comprising at least one photoactive molecule attached to the membrane.

169. (New) The membrane of claim 166 wherein at least one of the single-wall carbon nanotubes have ends that are derivatized with a photoactive dye molecule.

170. (New) A fullerene intercalation compound comprising:

- (a) an array of single-wall carbon nanotubes; and
- (b) a chemical species, wherein the chemical species are intercalated into space selected from the group consisting of in the tubes, between the tubes, and combinations thereof.

171. (New) A fullerene intercalation compound of claim 170 wherein the chemical species comprises lithium ions.

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172. (New) A membrane comprising carbon fibers that are aggregates of a plurality of single-wall carbon nanotubes, wherein the plurality of single-wall carbon nanotubes are in a generally parallel orientation.

173. (New) The membrane of claim 172 further comprising at least one dopant physically entrapped between the single-wall carbon nanotubes of the carbon fibers.

174. (New) The membrane of claim 173 wherein the dopant comprises a substance selected from the group consisting of metals, halogens, FeCl_3 , and combinations thereof.

175. (New) A photocell comprising a membrane, wherein the membrane comprises an array of single-wall carbon nanotubes in a substantially parallel relationship.

176. (New) The photocell of claim 175 wherein the membrane further comprises at least one photoactive molecule attached to the membrane.

177. (New) A battery comprising a membrane, wherein the membrane comprises an array of single-wall carbon nanotubes in a substantially parallel relationship.

178. (New) The battery of claim 177 wherein the battery is a lithium ion battery.

179. (New) A battery comprising a membrane, wherein the membrane comprises carbon fibers that are aggregates of single-wall carbon nanotubes, and wherein the plurality of single-wall carbon nanotubes are in a generally parallel orientation.

180. (New) The battery of claim 179 wherein the battery is a lithium ion battery.

181. (New) A lithium ion battery comprising an anode, wherein the anode comprises at least 10^3 single-wall carbon nanotubes bound to a substrate.

182. (New) A lithium ion battery comprising an anode, wherein the anode comprises ends of carbon fibers that are aggregates of single-wall carbon nanotubes in generally parallel orientation.

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183. (New) A lithium ion battery comprising a fullerene intercalation compound.
184. (New) A device comprising an electrode in contact with an electrolyte, wherein the electrode comprises single-wall carbon nanotubes having open ends, and wherein the open ends are chemically derivatized.
185. (New) The device of claim 184 wherein the device is a lithium ion battery.
186. (New) The device of claim 184 wherein the open-ends are chemically derivatized with a moiety providing an interface capable of supporting a reduction-oxidation reaction.
187. (New) The device of claim 184 wherein the open-ends are chemically derivatized with a moiety selected from the group consisting of polyethylene oxide, polyethylene oxide oligomers and combinations thereof.
188. (New) A fuel cell comprising a membrane, wherein the membrane comprises carbon fibers that are aggregates of a plurality of single-wall carbon nanotubes, and wherein the plurality of single-wall carbon nanotubes are in a generally parallel orientation.

REMARKS

A. *Status of the Application.* On September 3, 1999, Applicant filed the parent patent application, U.S. patent application Serial No. 09/380,545, which included originally filed claims 1-162. In an Office Action, dated June 20, 2000, ("the Office Action") the Examiner subjected the claims to a restriction requirement. According to the Office Action, the parent patent application's claims were directed to eleven (11) distinct inventions. Applicant elected the invention of Group VIII in the parent patent application. The present divisional application is directed to the invention of Group III, which were identified as the invention claimed by originally filed claims 31-33.

Accordingly, originally filed claims 31-33 remain in the application, and the other originally filed claims -- claims 1-30 and 34-162 -- are cancelled herein without prejudice or